# "SUCCESS BY ASSOCIATION": THE IMPACT OF VC FIRM REPUTATION TREND ON IPO VALUATIONS

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## ABSTRACT

Organizational theory recognizes reputation as a central element to understanding the firm. Examining investor valuations of 1,676 IPOs in the U.S. from 1990 to 2011, we find that reputation transfer through an association of an IPO firm with a venture capital (VC) firm represents a resource whose value can increase/decrease over time depending on investors' valuations of prior IPOs funded by a VC firm. We conclude that the impact of reputation transfer through association is not unidirectional, but instead is to be viewed in the context of prior reputational development of organizations the focal firm is associated with. Further, we find that three "transfer enhancers" can improve the impact of VC reputation transfer on IPO valuations including the VC's past intensity, the diversity of IPO experiences, and the number of prior syndicated IPOs involving the VC firm as a lead investor.

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*"Guy Hands conceded in a London court that his reputation was severely tarnished by the disastrous £4.2bn debt-fueled takeover of EMI and admitted that his legal battle against the US bank was more likely to be beneficial in repairing the €200m damage to his finances than in restoring his standing in the City… In court, Citi's lawyer Mark Howard had said Hands had been described as an investor with "magic sauce", with a reputation for cutting costs and securitizing – borrowing against income streams generated by the business… The EMI deal, clinched just as the credit crunch took the wind out of the decade's debt-fueled acquisitions spree, had been a rare blemish on the career of a 56-year-old."* **The Guardian, June 10, 2016. https://www.theguardian.com/business/2016/jun/10/profile-guy-hands-reputation-blemished-by-emi-deal (accessed October 4, 2018)**

Organizational theorists argue that in a high uncertainty environment, such as stock market valuations, external audiences may rely less on their rational judgment in deciding whether to interact with the firm, but rather more on their perceptions of the firm's value (Acharya and Pollock, 2013; Bell, Filatotchev and Aguilera, 2014). Such an argument is aligned with the evidence on external linkages as a key driver of the perceptions of a firm in such settings (Baum and Oliver, 1991; Deephouse and Suchman, 2008). Consistent with this view, Cialdini, Borden, Thorne, Walker, Freeman and Sloan (1976) argue that firms may benefit when a positive evaluation is transferred from one organization to another. From this perspective, therefore, external investors' perceptions of an IPO firm's value may depend on the reputation

of parties linked to the IPO firm including venture capital (VC) firms (Ertug, Yogev, Lee, and Hedström, 2016; Hochberg, Lindsey, and Westerfield, 2015).

Scholars do not yet fully understand the socio-economic mechanisms that form the basis for such reputation transfer, whether transfer came from success or failure. However, as the above quote relating to private equity investor Guy Hands' concern for his reputation illustrates, in practice reputation can be severely damaged quickly. This damage in turn can lead to significant long-lasting financial consequences as future investment opportunities are impacted. While in practice there is evidence of concern for reputation and its transfer between different actors in economic exchanges, scholars are yet to build such an understanding of reputation from a socio-economic perspective (Lange, Lee, and Dai 2011; Love and Kraatz, 2009).

Fombrun (1996: 72) defines business reputation as "a perceptual representation of a company's past actions and future prospects that describes the firm's overall appeal to all of its key constituents when compared with other leading rivals." Reputation is thus "a perception that organizations are positively distinctive within their peer group" (King and Whetten, 2008: 192). IPO firms offer a setting to examine reputation since they typically have a very limited performance track record. As such, to obtain a positive appeal among external constituencies, including stock market investors, IPO firms typically employ their linkages to reputable VC firms. The role of reputation can be seen in the research examining VC firm backing of a particular IPO; highly reputable VC firms positively affect investors' perceptions of the IPO, and subsequently, its valuation (Lee, Pollock, and Jin, 2011; Pollock, Lee, Jin and Lashley, 2015). Lange, et al. (2011: 180) point out, however, that the main problem in prior studies is that "…scholars have proposed and tested unidirectional rather than bidirectional causal relationships involving organizational reputation. It seems unlikely that the direction between reputation and

such variables as firm performance is in fact unidirectional." More specifically, the reputation of the VC firm itself may vary over time, either increasing or decreasing, depending on the stock market performance of their previous IPOs (Gomulya et al. 2018).[1] In turn, such variations in reputation could impact the VC firms' ability to aid the focal IPO firm's valuation by external investors (Petkova, Wadhwa, Xin and Jain, 2014).

Theoretically, reputation reflects the ability of a firm to repeatedly succeed in its stated intention over a sequence of independent events (Herbig et al., 1994). Thus, reputation is a historical notion generated from past results, and which makes the intention of the firm credible at a specific moment in time (Herbig and Milewicz, 1995). As such, if the reputation of a VC firm can accumulate or deteriorate depending on the success of past IPOs of their portfolio firms, then the capacity of that VC firm to enhance investor perceptions of its current investee also has the potential to change, and even become negative. This insight has the ability to expand significantly the topic of reputation transfer in organizational theory research by moving the view of reputation beyond a static, unidirectional and generic concept, into a value-based concept using the investor valuations of recent IPOs involving the focal VC firm. Here we address this theoretical issue by bringing a time-variant dimension to the process of "success by association" to examine our first (main effect) research question: *How does the VC firms' reputation accumulated over time through prior IPOs affect valuations of IPO firms they currently bring to the stock market?*

Further, researchers, with rare exceptions (e.g., Gomulya et al., 2018; Lee et al., 2011; Rindova, Williamson, Petkova and Sever, 2005), have considered reputation through external linkages as a unidimensional factor largely associated with past performance of the reputable connecting party. However, various components of reputational assets accumulate through

different processes, broadening the basis on which stakeholders perceive reputation beyond one specific attribute such as past performance track record (Rindova et al., 2005). Developing these arguments further, Lange et al. (2011) emphasize that the complexities of organizational reputation point to the need for further research using a multidimensional conceptualization of reputation and exploring the interactions among the dimensions. VC firm-level contextual factors provide additional, indirect information to outside investors about the VC firm's reputation, and should not be considered as orthogonal to the performance-centered reputation metrics, since they may perform a role of reputation transfer "enhancers" (Lange et al., 2011: 177). Building on prior studies that have differentiated between various dimensions of reputation (Deephouse and Carter, 2005; Gomulya et al., 2018; Lange et al., 2011; Rindova et al., 2005), we argue that VC firms backing a focal IPO have three time-dependent characteristics that serve as reputation transfer enhancers further contributing to the focal IPO firm's value. These VC firm characteristics include the intensity of the VC's previous IPO deal experience, diversity of the VC's IPO firm age experience, with age being used as a proxy for ex-ante uncertainty of a portfolio firm, and the VC's lead syndicate experience. We argue that these transfer enhancers may be particularly salient in affecting the overall VC firm reputation impact on investor perceptions of an IPO firm. Therefore, we also ask our second (contingency) research question: *How do reputation transfer enhancers affect the relationship between the IPO firm's valuation and the accumulated reputation of the VC firm that is backing this focal IPO?*

Answering these two research questions, we make a number of contributions to the literature. Theoretically, we help develop a deeper understanding of the complex relationship between reputation transfer and recipient performance as a core concern in organizational theory and strategic management research. Specifically, we extend theory by highlighting that

investors' perceptions of the IPO firm's value are not only related to the assessment of a firm's assets, technology and past performance but are affected by the time-dependent reputation of third parties the firm is associated with and, in turn, contributes to. This consideration of the dynamic, mutually interdependent relationship between "senders" and "recipients" in the context of reputation transfer represents a novel contribution to previous studies.

We also contribute by adding to emerging approaches that recognize the bi-directional nature of changes to VC reputation (Gomulya et al., 2018) rather than it being a linear, unidirectional process (Krishnan et al., 2011; Lee et al., 2011). Specifically, prior work associates reputation of a particular VC firm with a large number of companies taken public, a high total dollar amount of funds under management, or a large number of start-ups invested in over a specific period. We build on this approach by arguing and showing empirically that investors focus on reputation based on value creation. Investors are, after all, interested in the returns they can generate. High levels of new investment activity in a particular year may not convert into high returns. Further, as we know from studies of portfolio returns (Kaplan and Schoar, 2005; Epstein and Schneider, 2008), such value creation takes time to emerge as IPOs from a VC investment portfolio are distributed over time and may or may not be successful. As such, a VC builds its reputation dynamically only if these public offerings are associated with an increasing trend in terms of IPO firm value. Stated differently, building on the dynamic nature of reputation (i.e. the reputation of a VC firm changes with each IPO), we consider that each VC firm enters the IPO process with a 'stock of experience', comprising its background and past IPOs that have accrued up to that point. We therefore extend existing literature by using a value-based reputation approach using the accumulated reputation of a focal VC firm based on the trend of its past IPO values.

We further expand theory around reputation and its organizational outcomes by helping establish what VC firm characteristics developed over time act as a reputation transfer enhancer. This understanding of reputation enhancers represents an important theoretical extension of prior studies adopting a unidimensional focus on the organizational outcomes of the linkages (Acharya and Pollock, 2013; Filatotchev and Bishop, 2002; Hochberg, Ljungqvist, and Lu, 2007; Hochberg at al., 2015). This shift shows that the relationship between third party reputation and stock market performance of a focal firm is not universal. Rather, it is contingent on time dependent characteristics of the third party itself, in line with research on multiple dimensions of reputation (Lange et al., 2011; Rindova et al., 2005). More specifically, we argue that, in the context of IPOs, the three transfer enhancement mechanisms related to (1) the number of previous flotation experiences by the VC firm invested in the focal IPO, (2) the age diversity of firms backed by the same VC firm in the past, and (3) the number of prior syndicated IPOs involving the VC firm as a lead investor play an important role in boosting the effect of the VC firm's reputation on the valuation of a newly listed firm. Our contingency framework suggests that the process of inter-organizational transfer of reputation is more complex than previously understood.

## THEORY AND HYPOTHESES

A fast-growing number of studies emphasize that, with high uncertainty and risks associated with stock market transactions, external audiences may have significant difficulties in making objective judgments regarding the firm's behavior and future growth prospects that underpin investor perceptions of the firm's value (Bell et al., 2014; Pollock et al., 2008; Zajac and Westphal, 2004). Although IPO firms need to disclose considerable information in their issue documents, it is well-established that an IPO is a corporate event associated with a high

level of asymmetric information between issuing firm and external investors about its "true" value (Ritter and Welch, 2002). In this context, firm reputation becomes a particularly important intangible organizational asset (Deephouse, 2000; Lee et al., 2011) since it is valuable in reducing the uncertainty stakeholders face in evaluating firms (Rindova et al., 2005). Some authors go further, suggesting such benefits may be transferable through inter-organizational connections (Lange et al., 2011; Pollock, Chen, Jackson, and Hambrick, 2010; Rindova et al., 2005).

An important strand of reputation transfer research suggests that, with high uncertainty about whether past information is a reliable guide for future performance in entrepreneurial firms coming to market, firms may gain external parties' recognition by associating with reputable social actors in their environment. Cialdini et al. (1976) called this process "basking in reflected glory", and organizational legitimacy theorists call it "legitimacy by association" (Bitektine, 2011). These studies emphasize benefits that the firm may obtain from the reputation of organizations or individuals it is connected with (Acharya and Pollock, 2013; Certo, 2003; Hochberg et al., 2015). Lange et al. (2011) note that since reputation depends on the level of familiarity with, or knowledge of, an organization by outsiders, regardless their judgment of the firm, the firm's affiliation with prominent partners can enhance its reputation.

These arguments are particularly important in the context of IPOs because these firms, being in ambiguous circumstances and lacking a performance track record, seek to reduce others' uncertainties by forging exchange relationships with reputable actors (Acharya and Pollock, 2013). The IPO firm may enhance investor perceptions of its quality and, therefore, its stock market valuation by associating with highly reputable third parties.

**Reputation Transfer: Past VC Premium Trend and IPO Firm Valuation**

Studies adopting an economics view of reputation emphasize "technical efficacy" (Love and Kraatz, 2009), and argue that highly reputable VC firms are expected to have superior abilities to identify most promising investment opportunities. A significant body of research in finance and management has focused on VC firms as an important type of "reputation transmitters" (Chahine, Arthurs, Filatotchev and Hoskisson, 2012; Petkova et al., 2014; Hochberg et al., 2015). Lee et al. (2011) and Pollock et al. (2010) provide a comprehensive set of theoretical arguments why a VC firm's reputation can positively affect valuations of IPO firms it brings to the market. VC firms strive to preserve their reputation and are more likely to take on most promising ventures. This helps reduce investors' adverse selection problems and, in turn, improve IPO valuation. Further, reputable VC firms have superior monitoring capabilities and numerous useful connections and knowledge resources that should reduce moral hazard problems for investors in their IPO firms. In sum, from an economics perspective, high-reputation VC firms help certify that the focal IPO firm possesses the attributes that other market participants would infer if it had an extensive performance track record, and/or that these VC firms will make their own contribution to enhance the IPO firm's future prospects (Lange et al., 2011).

However, prior research grounded in an economic perspective views reputation of the focal firm's connections largely as a static concern, and reputation transfer itself as a unidirectional process (Kraatz and Love, 2006), when the current level of reputation of a "sender" impacts performance of a "receiver". In critiquing this approach, Lange et al. (2011: 180) suggest that "modeling bidirectional causal relationships involving organizational reputation will be consistent with the inherently dynamic nature of organizational reputation." Indeed, reputation is acknowledged as a historical concept based on intertemporal linkages that

result from previous actions over a prolonged period of time (Selden, 1978). As a VC firm enters a focal IPO process, it holds a "stock of experience" accrued up to that point from prior IPOs that is available to outside investors to take into account. Therefore, in the context of reputation transfer processes, reputation should be recognized as a dynamic concept whereby VC firm reputation impacts valuation of the focal firm they fund, but the valuation of the focal firm also impacts VC firm reputation over time. This view is consistent with Pollock, Lee, Jin and Lashley (2015) who took into account the variability of VC 'quality' experience – either in general and/or in relation to IPOs – in their analysis.

Building on the view that reputation is a dynamic concept, we argue that the effectiveness of VC reputation transfer can increase or decrease over time. VC reputation represents a cumulative process based on prior successful or unsuccessful IPOs. Outside investors may perceive the outcomes of previous IPOs led by a specific VC firm as an indicator of the extent to which it is reliable and distinctive from other (less reputable) VC firms. Given that VCs are usually involved in a series of IPOs, outside investors will try to infer the quality of the focal VC firm from the performance of previous IPOs in which the focal VC was involved, thus focusing on prior valuations-based indicators of VC reputation (Ebbers and Wijnberg, 2016). The resulting reputation, in turn, affects the price premium investors are willing to pay for each IPO firm's equity, creating a trend in the premium across the series of the VC's IPOs over time. The ability to view reputation transfer to the firm through a socio-economic mechanism that is time-dependent highlights reputation as an intangible asset, which builds or deteriorates over time; this view of reputation challenges the previously established views of reputation transfer as a static, unidirectional process.

To summarize, we argue that IPO firms will benefit, or be penalized, from their VC firm backers' prior success, or failure, due to reputation transfer. The VC firm's reputation dynamics is reflected in investor perceptions of the current IPO and affects the price premium they are willing to pay. This price premium, in turn, feeds back into the VC firm's reputation trend that is considered by investors when judging IPO firms that this VC firm will subsequently bring to the market, and this dynamic process of judgment/reputation formation unfolds further as long as the VC firm continues to be active in the IPO market. Thus, in terms of the IPO valuation process, one can expect investors to value VC firm-backed IPOs, and pay a higher price premium, depending on whether the VC firms involved have proven their success in prior investments. As a result, the trend of increasing or decreasing value creation by VC firms in their prior IPOs will positively, or negatively, impact the value of the focal IPO firm. Therefore, our main effect hypothesis is:

*H1: The price premium of a VC firm-backed IPO is positively associated with the past premium trend of prior IPOs backed by the same VC firm.*

**Reputation Transfer Moderators**

Hypothesis 1 argues that the VC firm's prior success or failure (premium trend over time) impacts the valuation of the focal IPO. As noted above, this assumption is consistent with the economics perspective on reputation with its emphasis on "technical efficacy" (Love and Kraatz, 2009). Building on Lange et al. (2011), and Love and Kraatz (2009) who suggest that this perspective should be considered in conjunction with other dimensions of reputation, we adopt a sociological theory-grounded perspective on reputation and its organization outcomes. This perspective suggests that reputation may be a multi-dimensional theoretical construct, that should involve, apart from the past performance track record, the perceivers' broader awareness of the

organization irrespective of performance evaluation (Lange et al., 2011). Rindova et al. (2005) observe that as the institutional perspective is concerned with the collective awareness and recognition that an organization has accumulated in its organizational field, it emphasizes the *prominence* dimension of organizational reputation.

We extend these arguments and suggest the impact of VC firm reputation transfer is not a unidimensional process. Rather, reputation transfer will be contingent on other time-related characteristics of the VC firm associated with the VC firm's broader prior experience with the IPO market. These time-related characteristics will enhance the reputation transfer from VC firms to portfolio companies coming to the stock market. Although Hypothesis 1 predicted that there is a direct relationship between the VC firm's reputation associated with its prior IPO valuation trend and investors' perception of its investee IPO, the impact of reputation transfer is not uniform across VC firms with the same level of technical efficacy. Therefore, we argue that key VC firm-level, stock market experience-related factors may operate in conjunction with prior-valuation-based reputation trend, therefore providing a "boost" or enhancer to the overall mechanism of reputation transfer to the IPO firm.

These arguments are in line with more recent research that suggests that information asymmetries may also be a source of investors' ambiguity (as opposed to uncertainty) about the firm that may prompt different responses among investors and more long-term efforts from the firm to clarify. Park and Patel (2015), for example, explore ambiguity in terms of information clarity in the wording of IPO prospectuses. The authors find that underpricing is lower when IPO prospectuses contain clearer information about the firm. Epstein and Schneider (2008) relate ambiguity to the quality of information and its impact on asset pricing: news from more reliable sources in their theoretical model should lead to more portfolio re-balancing compared to news

from less reliable sources. In other words, factors that may contribute to the VC firm's *prominence* may reduce ambiguity associated with reputation based on past economic performance.[2]

The experience-related enhancer refers to the increase in value of the reputation transfer related to the increased market participation of the firm's business associate over time (Deephouse and Carter, 2005). In terms of the reputational transfer from VC firm to IPO, the transfer can be significantly enhanced if stock market investors, in addition to the VC firm's past IPO valuation trend, perceive the level of a VC firm's prior experience in the IPO market as high. The sociological institutional perspective on reputation suggests a high level of participation may contribute to the VC firm's *prominence* that "captures the degree to which an organization receives large-scale collective recognition in its organizational field" (Rindova et al., 2005: 1035). Lange et al. (2011) refer to this process as *being known* and suggest this dimension of reputation may enhance the impact of reputation based solely on past economic performance (e.g., *being known for something*).

The existing literature suggests that reputation, or being known, for VCs relates to three concerns: 1) intensity of their own experience, 2) the diversity of the VC's experience, and 3) the extent of their experience of interacting with others VCs through syndication (Yang, Narayan and Zahra, 2009). Therefore, we focus on these three aspects of VC firm experience and how they moderate the relationship stated in Hypothesis 1. Specifically, we examine how these three aspects of reputation relate to the IPO market - previous IPO deal experience, IPO age experience diversity, and IPO lead syndicate experience.

We argue that even with similar levels of success in terms of prior IPO valuations, some VC firms are more active than others in making investments in firms that ultimately pursue IPOs.

Greater experience in participating in more deals allows VC firms to demonstrate more often over time their ability to create greater effectiveness, efficiency, and utility in making investments. Similarly, the number of IPO exits is one way to assess whether past valuation performance of the VC firm is sustained (Cumming, 2007) as IPOs are widely regarded as the best exit outcomes for VC firms (Cumming, Fleming, and Schwienbacher, 2006). Thus, increasing participation in IPOs enhances the assurance to potential outside investors of the value of the VC firm's reputation in being able to increase the quality and value of new ventures (Proimos and Wright, 2005). Such increasing participation in IPOs means VC firms can integrate compressible and focused routines, providing the basis for capacity development (Yang et al., 2009). Investors, therefore, will view VC firms with a higher level of experience over time as a greater force in the reputation transfer process. This greater force of reputation will persuade investors to pay more for IPOs associated with experienced VC firms at a given trend of success with prior IPOs. As a result, we expect the relationship between the premium trend of past IPOs of the VC firm and the price premium of the current focal IPO suggested in Hypothesis 1 to be positively moderated by the number of prior IPO experiences of the VC firm, labeled here as "experience intensity". Therefore:

*H2: The relationship between the price premium of a VC firm- backed IPO and the past premium trend of prior IPOs backed by the same VC firm is positively moderated by experience intensity of that VC firm.*

Reputation may also be enhanced by the diversity of experience, defined as "the extent to which experience is accumulated through the solution of a diverse range of problems associated with subjects of interest" (Yang et al., 2009: 265). VC firms could gain that knowledge when exposed to different situations and sets of conditions (Yang et al., 2009). This suggests that the

greater the variety of experiences in managing uncertainties faced by a VC firms, the greater the ability of the VC firms to make appropriate decisions.

In preparing their portfolio companies to go public, VC firms face various sources of valuation uncertainties. This requires VC firms to develop the required skills and capabilities to solve a wide range of problems associated with their portfolio companies. One source of uncertainty used in IPO valuation is portfolio firm age at IPO, i.e. how established it is (Loughran and Ritter, 2004). Older firms are easier to value, since more of their value is represented by capitalized earnings than by expectations about future growth rates, which can vary substantially from firm to firm. Kim and Ritter (1999) show that absolute prediction error in the valuation of firms younger than ten years old at the time of their public offerings is higher than that observed for older firms. Beatty and Zajac (1994) use firm age at IPO as a proxy for its experience or sophistication. Given the high level of information asymmetry in the valuation of new firms, IPO investors may use firm age as secondary information to sort firms (Sanders and Boivie, 2004; Park and Patel, 2015; Lungeanu and Zajac, 2016). Thus, age of the IPO firms taken to market is a key element of diversity of the focal VC firm's experience.

Regardless of the age of the portfolio company at the time of VC investment, VC firms screen, select and support with the aim to achieve a successful exit. While some VC firms may grandstand and take their portfolio companies at an early stage, other VC firms may take public older portfolio companies, thus reducing the uncertainty faced by outside investors (Gompers, 1996). Some VC firms may also develop an expertise in taking firms public at different ages. This diversity of experience can signal to potential investors that the VC firm has the ability to pick firms across a broader range of different business opportunities and succeed in taking them public at different stages of development. Following Rindova et al. (2005), a wider experience

diversity should also contribute to the VC firm's *prominence* which should act as an enhancer regarding the impact of reputation based on past economic performance (e.g., *being known for something,* Lange et al., 2011). Therefore, the VC firm's prior experience diversity in dealing with firms of different ages should enhance the overall impact of the reputational trend on the IPO's valuation identified in Hypothesis 1.

The more the VC firm is known for having pursued opportunities in businesses at different ages, the more likely it will build an expectation among outside investors that it will accurately judge the value of and effectively monitor a potential portfolio company (Hayward, 2002). Investing in diverse IPO age levels can create an additional resource that can be transferred to a focal IPO firm associated with the VC firm, and this in turn is reflected in the value placed on the IPO firm by investors. Thus, we expect the relationship between the past premium trend of IPOs with which the VC firm was associated and the price premium of the current IPO found in Hypothesis 1 to be positively moderated by the range of the VC firm's experiences in taking them public at different ages, labeled here as "experience diversity." Therefore:

> *H3: The relationship between the price premium of VC firm-backed IPO and the past premium trend of prior IPOs backed by the same VC firm is positively moderated by experience diversity of that VC firm.*

While IPO valuation depends on its association with reputable third parties, the VC firm also has relational capital that depends on the VC firm's recognition by its peers. Such recognition by peers may enhance the overall impact of VC firm reputation on investor perceptions of the focal IPO. One key form of relational capital for the VC comes through their

activity in syndications (Chahine et al., 2012), that is when a group of VC firms come together to fund a new venture rather than a single VC firm taking on all of the risk (Pollock et al., 2015).

Participation in syndicated deals encourages VC firms to share complementary knowledge and learn to share financial risks among syndicate partners (Dimov and De Clerq, 2006). Syndication represents a way to work with others and obtain pooled financial and knowledge-based resources that could not be reached otherwise (Hochberg et al., 2015). Syndication increases the VC firms' social network (Sorensen and Stuart, 2001), creating greater access to knowledge and resources that aid the firm in which they invest (Hochberg, Ljungqvist, and Lu, 2007). VC firms with greater syndication experience, especially as a lead investor, would likely have access to both complementary management skills (Brander, Amit, and Antweiler, 2002) and future deals (Hochberg et al., 2007). As a result, scholars argue that well-networked VC firms perform better since they can provide better value added services to portfolio companies (Hochberg et al., 2007). Some VC syndicate partners may act as so-called "dumb money", who share the financial risk, but bring little if any knowledge to help the business to grow towards a successful exit. If that were the case, the reputation of VC firms would not be enhanced through involvement in more deals. However, such dumb money would not lead a syndication.

Prior research suggests that syndicate leads typically have greater interaction with portfolio companies than do other syndicate partners. The syndicate leads direct exit decisions through drag-along clauses and other non-contractual mechanisms that implement such decisions by syndicates (Wright and Lockett, 2003). Such decisions on exit are complex, as the VC must consider not only the development of the portfolio company, but also changing stock and asset market conditions. Greater experiences of adding value to portfolio companies and coordinating

syndicates to exit enables syndicate leads to develop expertise and a reputation of being able to bring portfolio companies to a successful IPO as outlined in Hypothesis 1. While the exit from syndicates can undermine a VC firm's reputation (Zhelyazkov and Gulati, 2016), experiences of leading a syndicate to a successful exit can be expected to enhance value.

This belief in the syndication lead enhancing value is further encouraged by the evidence that being a lead investor increases the VC firm's prominence and reputation within the VC community (Podolny, 1993). The result is a generalized favorability view of the IPO firm where it is perceived as "good, attractive, and appropriate" (Lange et al., 2011: 155). Lange and colleagues argue that generalized favorability may enhance the effects of being known for something dimension of reputation which, in our context, is approximated by the past valuation trend. It follows that through prior leadership roles in syndicated co-investments by its VC backers, the focal IPO associates itself with a wider pool of firms that have obtained the stock market listing in the past increasing therefore its value perception vis-à-vis stock market investors. Thus, we expect the relationship between the past premium trend of previous IPOs and the price premium of the current IPO found in Hypothesis 1 is positively moderated by the lead syndicate experience of the VC firm. Therefore:

> *H4: The relationship between the price premium of a VC firm-backed IPO and the past premium trend of prior IPOs backed by the same VC firm is positively moderated by lead syndicate experience of that VC firm.*

## DATA AND METHOD

We adopted a multi-stage data collection procedure, first collecting the entire list of 2,567 VC firm-backed IPOs in the U.S. listed in the Thomson One Banker and SDC Platinum database from 1990 to 2011. We focused on all VC firms with previous IPO experience (i.e., prior IPO

premium). This approach resulted in 1,174 distinct VC firms involved in 1,676 IPOs with a total number of 7,331 individual VC firm-IPO firm observations for which we have complete information on firm characteristics and IPO premium.

**Dependent variable**

The dependent variable, *IPO Premium*, is the price premium paid for a firm at IPO, defined as the ratio of the difference between the offer price and the book value per share over the offer price (Nelson 2003; Rasheed, Datta, and Chinta, 1997). Offer price represents the price that investors have expressed their willingness to pay during the pre-IPO roadshows (Welbourne and Andrews, 1996). By comparing offer price to book value, the premium indicates what fraction of the offer price represents the premium over book value per share. It includes the effects of fundamental factors, such as intangible assets and competitive advantages of the firm that are not included in the accounting value of the assets (Nelson 2003). Bell et al. (2014) and Filatotchev, Chahine, and Bruton (2018) argue that price premium is a reliable proxy for investor perceptions of a firm in the highly uncertain context of stock market listings.[3]

**Independent variables**

*Past VC Premium Trend* is the trend of the price premium for all previous IPOs in which the same VC firm participated since 1990 and prior to the focal IPO's date. This trend is constructed as an ordinal variable ranging from 1 to 5. Specifically, the *Past VC Premium Trend* variable is equal to 1 if the premium drops continuously from initial IPO to focal IPO; 2 if the premium trend varies over time with a decrease in premium on average; 3 if the premium trend varies over time with an average change in premium equal to zero; 4 if the premium trend varies over time with an increase in premium on average, and 5 if the premium trend varies over time and has a continuous increase in the premium from the VC firm's first IPO deal in our dataset to

the focal IPO deal. Thus, the premium trend over time examines both the increasing and decreasing valuation trends that can develop in a VC firm's investment activity.

*VC Experience Intensity* is the number of previous IPOs in which a particular VC firm was involved since 1990 (see Yang, *et al*. 2009). As some VC firms are more experienced than others VC firms in our sample, our empirical tests use the logarithm of the number of previous IPOs to avoid skewness effects.

*VC Experience Diversity* is the extent to which a VC firm participated in issuing firms going public at different ages. We classified IPO firms in 10 different age brackets of 6 years each starting from a one-year old IPO firm to 55 years old and above (1 to 6 years, 7 to 12, 13 to 18,…, 48 to 54, and then 55 years old and above). We argue that different age brackets reflect different levels of ex ante uncertainty. We then counted the number of age classes in which a VC firm participated in prior to the IPO date.

*VC Lead Syndicate Experience* is the intensity of prior lead syndication activities of the VC firm measured as the percentage of syndicated IPOs to total IPOs the VC firm has been involved in as a lead VC firm before the date of the focal IPO. To calculate *VC Lead Syndicate Experience*, we first use a dummy variable equal to 1 for any VC syndicated IPO in which the VC firm has participated as a lead VC, and zero otherwise. We then calculate the percentage of syndicated IPOs out of the total IPOs in which the VC firm was involved as a lead VC.

Finally, as the three measures of the VC's prior IPO experience may not be orthogonal, we computed a *VC Overall Experience* variable as follows. First, we divided each of our three defined reputation transfer enhancers in quintiles ranging from 1 to 5. We then calculated the average of the three calculated quintiles. This represents an indicator ranging from 1 (lowest experience) to 5 (highest experience).

To test Hypotheses 2 to 4, we mean-centered our variables of interest and constructed our interaction terms (Aiken and West, 1991). This reduces multicollinearity without altering the structure of the relationships between variables. This also allows direct interpretation of coefficients in both baseline and interaction equations (Jaccard, Turrisi, and Wan, 1990; Hunter and Thatcher, 2007). Our tests show that the variance inflation factors (VIFs) are lower than 2.59, which rejects potential multi-collinearity problems.

We calculated all VC firm-related variables at the VC firm level. For example, if several VC firms are involved in a syndicated investment in the focal IPO, a VC firm-IPO pair would have the same IPO premium, but the VC firms would have different experience, diversity of experiences, and pre-lead syndicate experiences. In robustness tests, we also averaged VC firm-related variables at the IPO firm level, and the results remain consistent (see below).

**Control variables**

We employ several variables to control for both VC firm and focal IPO firm characteristics that could affect the results. Given that lead VC firms may play a more influential role in determining the premium at IPO, we add a *Lead VC dummy*, equal to 1 if the VC firm is the lead the syndication for the focal IPO, and zero otherwise. In line with prior research, we control for *VC reputation* using two different variables. First, we use the logarithm of VC age (Lee and Wahal, 2004). This VC reputation measure controls for unobserved factors such as the quality or skill of the VC firm. It allows us to show the marginal impact of our trend variable after controlling for VC age, used as a proxy VC reputation. More recently, Lee, Pollock, and Jin (LPJ, 2011) propose a VC reputation index that largely measures the standing of an individual VC firm within the overall VC investment sector. The LPJ VC reputation index is a multi-item, time varying index of formative indicators of VC firm reputation. It is calculated annually for the

period 1990-2010, and covers from approximately 500 to 1300 venture capital firms, depending on the year. The assessment criteria included in the index are related to the dollar amount and number of investment funds under management, the dollar amount invested in start-ups and their number, and the number of firms taken public. Therefore, we used the LPJ VC reputation index as a second proxy for VC reputation to test our main hypotheses.

We control for the IPO success ratio of VC firms, which measures the ability of the VC firm in converting its portfolio companies into IPOs. The *VC IPO success ratio* is equal to the total number of companies taken public by a VC firm over the total number of its portfolio companies in the current year (Chang, 2004; Pollock et al., 2015). Prior literature suggests that different types of VC firms have different investment strategies, which affect the value and success of portfolio companies (Tykvova and Walz, 2007). We thus control for whether the VC firm is *Independent VC*, *Finance VC*-affiliated, *Corporate VC*-affiliated, or *Other VC* firm (e.g. pension funds, endowments, and government VC programs) using dummy variables, 1 if the VC firm belongs to a certain type and zero if it does not. The size of the VC syndicate is likely to increase IPO premium (Tian, 2012), and we control for it using *VC Syndicate,* which is equal to the total number of VC firms involved in a specific IPO.

For IPO firm characteristics, we control for *Price Revision,* which is equal to the difference between the offer price and mid-point of the initial price range. *Price revision* is the product of direct negotiation between the underwriter, associated parties, and the IPO firm. Further, we control for the liability of newness of the IPO firm using firm size calculated based on the logarithm of pre-IPO total assets, *Log Asset,* and IPO firm age calculated based on the logarithm of years since its incorporation, *Log IPO Age* (Loughran and Ritter, 2004). A *Hi-tech* dummy is also employed to control for the firm's technology orientation since it may positively

affect IPO premium (Filatotchev et al., 2018),[4] equal to one 1 if the IPO firm is a high-technology firm, and zero otherwise. A firm's leverage, debt over the book value of equity prior to the IPO date (Bruton et al., 2010), may provide a monitoring role and increase IPO premium. Therefore, we employ a *Leverage* control. We also control for IPO firm profitability using a *Loss* dummy variable, 1 if the IPO firm had operating losses during the last year prior to IPO date, zero otherwise (Filatotchev et al., 2018). As the exit of initial owners at the time of IPO may be considered a bad signal, we add *Participation ratio,* measured as the percentage of secondary shares sold by existing shareholders out of the total number of shares offered at IPO, also as a control.

We control for *Underwriter Reputation* using the ranking in Loughran and Ritter (2004), which ranges from zero (least) to nine (most reputable underwriter). We expect reputable underwriters to certify the quality of IPO firms, and increase IPO premium. We control for whether the IPO is on the *NASDAQ* using a dummy in order to account for the different valuation levels than in NYSE and AMEX (Lowry, Officer, and Schwert, 2010). The *Market Return* variable controls for the effect of market conditions on pricing. This effect is equal to the buy-and-hold return of the Value Weighted CRSP index over a three-month period prior to the IPO date. The IPO premium is expected to increase in "hot" periods of the market, therefore, we employ a control *Heat degree*, equal to the percentage of IPOs firms with an offer price higher than the mid-point of the initial price range during the last month prior to IPO date (Ibbotson, Sindelar, and Ritter, 1994). We further control for differences among VC firms using VC dummies, and control for the effect of changes in regulatory environment by including year dummies, as well as the effect of the difference in pricing models across industries using the two-digit SIC codes as industry dummies.

**Descriptive statistics**

Table 1 presents the descriptive statistics and indicates an average IPO premium of 73%. It also shows that the average past premium trend for VC firms is equal to 3.3, which is slightly higher than 3, the value at which the average change in past premiums equals zero. A higher than 3 past VC premium trend suggests that VC premium increases over time. Although not shown in Table 1, 504 VC firm-level observations are ranked 1; 2,218 VC firm-level observations are 2; 3 VC firm-level observations are ranked 3; 3,684 VC firm-level observations are ranked 4; and 922 VC firm-level observations are ranked 5. These classifications mean that VC firms exhibit a positive past premium trend in 62.8% of the VC firm-level observations of IPO premium. In addition, VC firms have on average participated in 16 previous IPO, they were involved in more than two different IPO age classes and acted as lead VC in 16% of their former IPO deals. The Pearson correlation coefficients show a positive association between current IPO premium and VC firm's past premium trend and experience.

- Insert Table 1 About Here -

**Model estimation technique**

To test our hypotheses using the variables described above, we examine VC-backed IPOs. However, all VC-backed firms do not necessarily reach IPO. Non-IPO firms make up a considerable portion of a given VC's portfolio, which might lead to a sample selection bias. To avoid such bias, we use a two-stage Heckman (1979) model. In the first-stage regression, we estimate the likelihood of going public, i.e. probability of an IPO, using all VC deals in the US markets. This allows us to calculate an adjustment term (the inverse mills, *Lambda*), which corrects for the sample selection bias. We then incorporate *Lambda* in our second-stage testable regressions for IPO valuation.[5]

We compiled the extra data and variables for our first-stage regression consistent with prior research (i.e., Pagano and Roell, 1998; Chemmanur, He and Nandy, 2010). Specifically, we collected data available in VentureXpert on portfolio companies and VC firms' characteristics and we added data on economic and market conditions from the U.S. Bureau of Economic Analysis and CRSP databases. In terms of portfolio companies' characteristics, we expect the probability of going public to be positively related to firm size measured by the logarithm of the book value of equity of portfolio companies, *Log Book Value of Portfolio Company Equity*, and the logarithm of firm age at the last investment round, *Log Portfolio Company Age at Last Round*. We expect larger and older portfolio companies to be more mature and ready to go public. In terms of VC characteristics, we controlled for the average experience of VC syndicate members at the last financing round using the logarithm of their average age, *Log Average VC Syndicate Age*. We expect experienced VC syndicates to better prepare their portfolio companies for IPO exits. We also controlled for stage of financing: *Seed Stage dummy, Early Stage dummy, Expansion Stage dummy, Late Stage dummy,* and *Balanced Stage dummy*; and we expect firms at late financing stage to be more ready for an IPO. Further, we controlled for market conditions using the logarithm of the number of previous IPOs in the same state, *Log Number of Previous IPOs*, and the equally weighted CRSP one-year market return, *Market Return*, over the last year prior to the last investment round. We also added *Heat Degree* during the last month prior to the last financing round to control for market momentum (Ibbotson et al., 1994). We also controlled for the growth rate of the GDP per capital, *GDP per Capita Growth*, as a proxy for the overall economic situation in the U.S., and we expect market and economic conditions to increase the probability of going public. Finally, our empirical test controls for state dummies, Industry dummies and year dummies.

Table 2 includes Model (1) which presents the logit regression of the probability of going public using the entire population of 26,172 VC-backed portfolio companies from 1987 to 2011, for which we were able to retrieve data from VentureXpert. We start three years prior to our studied sample to allow for IPOs following the last investment rounds. As predicted, the probability of going public is positively related to portfolio companies' size, age, and market return (at the $p < 0.01$ or a more significant level), and to a lesser extent to the age of VC syndicate ($p < 0.05$), the number of previous IPOs ($p < 0.10$), and heat degree in the IPO market ($p < 0.10$). Also, firms are less likely to go public in their seed, early, or expansion financing stages ($p < 0.001$), and are more likely to do so when they are at their late financing stage ($p < 0.001$).

- Insert Table 2 About Here -

## RESULTS

Table 3 presents our multivariate regressions that test the four hypotheses using OLS regressions after controlling for both measures of VC reputation.[6] Specifically, Panel A uses Log VC Age as a measure for VC reputation within the full sample of 7,331 VC firm-level observations (Lee and Wahal, 2004). Panel B repeats our tests using the LPJ (2011) VC reputation index within the sub-sample of 3,737 VC firm-level observations with available data on VC reputation.

- Insert Table 3 About Here –

Model (2a)-Panel A presents the OLS regression of the *IPO Premium* on the *Past VC Premium Trend* using the valuations of past IPOs backed by the same VC firm since 1990. It examines the linear association between the current IPO valuation and the trend of previous premiums and shows a positive and highly significant estimated coefficient of the *Past VC*

*Premium Trend*, with a t-value of 31.91. The 95% confidence interval for the estimate of the *Past VC Premium Trend* determined by the likelihood ratio and the 5% critical value from the X2 distribution is (0.11, 0.13), which is a narrow interval. This confirms the positive and significant relationship between the *IPO Premium* variable and the *Past VC Premium Trend*, thus supporting Hypothesis 1. The results indicate that a one rank increase in the *Past VC Premium Trend* increases the IPO premium by 12%. For an average market capitalization of IPOs in our sample of $393.21 million, calculated at the offer price, this represents an average increase of $46.48 million in the market capitalization. This finding indicates the high economic significance of the process of reputation transfer that we investigate.

Models (2b) through (2d) present our interaction terms showing the direct impact of the three reputation transfer enhancement mechanisms (number of previous flotation experiences by the VC firm invested in the focal IPO, the age diversity of firms backed by the same VC firm in the past, and the number of prior syndicated IPOs involving the VC firm as a lead investor) sequentially. They are then followed by Model (2e) which shows the model including the interaction term of our composite score, VC overall experience. All Models show a negative and significant coefficient of Lambda ($p < 0.01$), which indicates the existence of a selection bias of our VC-backed IPOs. In line with our expectations, Models (2b) to (2e) show that, after controlling for selection bias, the association between IPO premium and the *Past VC Premium Trend* is positively moderated by the three reputation transfer enhancers as well as by our composite score reflecting a VC's overall experience ($p < 0.001$), consistent with Hypotheses 2, 3, and 4. Our results in Models (2b) through (2e) indicate that an increase in the *Past VC Premium Trend* by one rank allows a VC firm to increase the premium of its current IPO by 12%, and this is 1.1% (*Experience diversity*) to 5.2% (*Lead Syndicate experience*) higher in the

interaction with our VC reputation enhancers. More specifically, based on the average market capitalization of $393.21 million, the moderating role played by our VC reputation enhancers allows the market capitalization to be $4.33 million to $20.45 million higher. Again, these results provide support for the hypothesized positive moderating relationship of our three reputation transfer enhancers.

Model (3a) -Panel B repeats our tests within the sub-sample using LPJ VC reputation index. It exhibits similar results to Model (2a) and shows a positive and significant association between *IPO Premium* and *Past VC Premium Trend* ($p < 0.001$). Further, Models (3b) to (3e) also show that our three reputation transfer enhancers as well as the overall VC experience positively moderate the positive association between *IPO premium* and the *Past VC Premium Trend* (at the $p < 0.05$ level or a more significant level). Interestingly, all models indicate a positive association between *IPO premium* and LPJ VC reputation (at the $p < 0.10$ or a more significant level). Overall, our results in Table 3 suggest that our Hypotheses 1 to 4 on the impact of *Past VC Premium Trend* hold even after controlling for the LPJ VC reputation index thus providing important evidence complementing prior research.

To demonstrate the interaction effects, we plot in Figure 1 the impact of *Past VC Premium Trend* on predicted values of *IPO Premium* at different levels of *VC Experience Intensity* based on the entire sample of 7,331 individual VC firm-IPO firm observations. Using a one standard-deviation above or below the mean level, we show that the slope of the association between *IPO Premium* and *Past VC Premium Trend* is higher for VC firms with a high *VC Experience Intensity* than those with low *VC Experience Intensity*. Figures 2, 3, and 4 illustrate similar moderation effects for *VC Experience Diversity* and *VC Syndication Experience, and VC Overall Experience*, respectively.

- Insert Figures 1, 2, 3 and 4 About Here –

Regarding control variables, Table 3 indicates that IPO Premium is positively related tothe size of VC firm syndicate ($p < 0.001$). IPO premium is also positively, yet less significantly, related to the IPO success ratio of the VC firm (at the $p < 0.10$ or a more significant level). In terms of firm characteristics, IPO Premium is higher in firms that are smaller ($p < 0.001$), and older ($p < 0.001$). IPO premium is also higher in firm managed by more reputable underwriters ($p < 0.001$), and those going public during a hot period ($p < 0.001$).[7]

## FURTHER ROBUSTNESS TESTS

To validate our results, we conduct a large number of robustness tests. First, our *Past Premium Trend* captures the overall, general trend, of price premium. However, our construct may be affected by the volatility of IPO prices, especially during the dot-com era. Table 4 focuses on short-term premium trend, with a past premium trend calculated based on public offerings that occurred during the last year prior to IPO date. The results in Models (4a) to (4e) and (5a) to (5e) confirm our expectations and show a positive and significant association between IPO premium and *Past Premium Trend* over a one-year period ($p < 0.001$). Further, Models (4b) to (4e) show that IPO premium is also higher in the interaction terms between *Past Premium Trend 1Y* and our reputation transfer enhancers (at the $p < 0.05$ or a more significant level), and the results are slightly less significant in Models (5b) to (5e) (at the $p < 0.10$ or a more significant level). This suggests that temporal effects do not differentially affect the pricing outcomes. In other words, IPO stage investors care both about the short- and long-term pricing outcomes of a VC firm, and are not necessarily driven by an anchor-and-adjust behavior in which IPO prices based on an assumed starting point and only adjusted from that point as new information comes available.

- Insert Table 4 About Here –

The test of IPO pricing and its trend may suffer from bi-directionality concerns in which the past valuation trend may not necessarily be the only factor investors take into account as they may be also concerned about post-IPO performance of the firm. For example, a company that has a blockbuster IPO and then tanks in performance might damage VC reputation, while a company that has an "average" IPO and then performs better than expected may have a positive reputational effect on the VC. To control for the impact of post-IPO performance effect on reputation transfer, we tested the association between IPO premium with the VC's past reputation trend using the one-year buy-and-hold abnormal return, BHAR 1Y, of the latest IPO the VC was involved in as a control. The results in Table 5 show a positive and significant association between both IPO premium and the Latest BHAR1Y of the last IPO in which a VC firm was involved. More importantly, our results still validate our predictions on the role played by Past IPO premium trend and VC reputation transfer enhancers after controlling for the post-IPO performance of previous listings of firms by the same VC.

- Insert Table 5 About Here –

Further, Table 6 examines the impact of the characteristics of VC firms on the association between *IPO Premium* and *Past VC Premium Trend*. In Panel A, we hand-collected data on VC ownership from the IPO prospectuses that we were able to access from Edgar and other online sources. In Panel B, we repeat our tests using a *Last Round VC dummy*, which is equal to 1 if the VC firm participates in the last round, zero otherwise. Finally, in Panel C, we repeat our tests including the *Lead VC reputation* as a control variable regardless whether the studied VC firm is the lead VC or not. Our empirical results indicate that IPO premium is positively related to our three VC characteristics: *Largest VC Ownership dummy*, *Last Round VC dummy*, and *Log Lead*

*VC Age*, which confirms the importance of the role played by VC firms. More importantly, we find strong evidence on the existence of a positive and significant association between *IPO Premium* and *Past VC Premium Trend* after controlling for VC firm characteristics. Our results also confirm the moderating effects of our reputation transfer enhancers on the positive association between *IPO Premium* and *Past VC Premium Trend*.

- Insert Table 6 About Here –

Our empirical tests use IPO firm age to calculate VC experience diversity. Previous studies suggest other risk factors that may help VC firms develop a diverse experience dealing with valuation uncertainties (Beatty and Zajac, 1994; Loughran and Ritter, 2004). Therefore, in further robustness tests, we use the number of risk factors, and we argue that VC firms with a larger exposure to previous IPO deals with different levels of risk factors have a higher diversity experience in managing ex ante uncertainty. We therefore expect a positive association between *VC risk-experience diversity* and IPO premium. We hand-collected data for the number of risk factors as mentioned in the IPO prospectuses for 794 VC-backed IPOs. This resulted in a total number of 4,064 VC observations related to 962 VC firms using *Log VC Age* as a proxy for VC reputation. We then classified the number of risk factors in 10 different risk brackets of six risk factors each. Our 10 risk brackets include IPO firms with 1 to 6 risk factors, 7 to 12 risk factors…, 48 to 54 risk factors, and finally firms with 55 risk factors and above. We then counted the number of risk brackets in which a VC firm participated prior to the IPO date. As predicted, our empirical results show that IPO premium is positively related to *Past VC Premium Trend*, *VC Risk Experience Diversity*, and the interaction between both variables (at the $p< 0.05$ or a more significant level). This supports the use of VC diversity experience as a reputation transfer enhancer, and the results are available upon request.

Alternatively, the diversity of experience may depend on the exposure of VC firms to different industries, which provide them with greater abilities to identify potential opportunities and add value to portfolio companies (Hochberg et al., 2015; Yang, *et al.*, 2009). We further calculated *VC Industry Experience Diversity* for our studied sample based on industry using two-digit SIC codes. Looking at VC firms in our sample, a specific VC firm was involved in a maximum of 34 different two-digit SIC industry sub-groupings. In this context, we calculated the number of different industries in which a VC firm had a prior experience prior to IPO date. The results remain consistent and show that IPO premium is positively associated with *Past Premium Trend, VC Industry Experience Diversity,* and the interaction term between both variables (at the $p< 0.01$ or a more significant level).

Further, as an alternative model specification at the level of the focal IPO firm, investors may look at the average reputation transfer provided by all VC firms in the syndicate rather than the one provided by the lead VC firm. To address this possibility, we calculate the average past premium trend of all VC firms within the syndicate, and examine the effect of VC firm reputation transfer at the level of the focal IPO firm. Our empirical tests confirm our predictions and show that the current IPO premium is positively related to the average past premium trend of all VC firms in the VC firm's syndicate ($p < 0.001$). The current IPO premium is also positively related to the interaction of the average past premium with both cumulative experience intensity and experience diversity of the VC firm syndicate ($p < 0.001$). Overall, our results indicate the individual VC firm effect is significant even after controlling for the effect of other VC members within the VC syndicate. Also, the results show reputation transfer impacts IPO value regardless of whether the empirical tests are conducted at IPO firm level, or at the level of specific VC

firms. Our findings also indicate the effects at the VC firm level are stronger than the effects at the overall VC firm syndicate level.[8]

## DISCUSSION

We hypothesize and show that IPO firm valuation depends on how reputation of its VC investors builds over time – VC firms' prior successes and failures affect their ability to impact the price premium in subsequent IPOs. Thus, the VC firms' ability to affect positively the valuation of the focal IPO they are associated with will increase depending on their prior success. The theory developed here advances understanding of reputation transfer in significant new ways by highlighting that the process of valuation of IPO firms through the association with VC firms should be analyzed in the context of prior VC firms' involvement in the IPO market that changes over time. The cumulative success of VC firms in the IPO market can lead to positive impacts for IPO firms that utilize them after that success, while VC firms with unsuccessful track records can see their impact on investor perceptions of the focal IPO's value decline. Our testable hypotheses remain valid after controlling for the impact of VC reputation using commonly used proxies such as VC age and LPJ VC reputation index. Our results specifically indicate that an increase in the *Past VC Premium Trend* by one rank leads to an increase of the focal IPO's market capitalization by $46.48 million on average, which represents a significant economic effect associated with the VC firm's reputation build-up over time.

Additionally, we extend theoretical understanding of organizational outcomes of reputation by examining three time-dependent reputation transfer enhancers associated with a focal firm; a conceptualization of reputation transfer not investigated until now. Our evidence is that these enhancers can moderate the overall effect of direct reputation transfer within the VC firm-IPO pair. Moreover, it is the reputation of an individual VC firm that seems to matter more

since the effects at the individual VC firm level are stronger than at the syndicate level. The future use of this understanding by researchers on VC firms and other entities with reputational capital will allow a far more comprehensive exploration of organizational effects of reputation to be developed.

By examining IPOs and the role of VC firms, our research has also allowed a significant expansion of the understanding of the sociological approach to financial market behavior, a concept growing in importance in the literature (Bell et al., 2014; Zajac and Westphal, 2004). While scholars recognize VC firms as entities increasing the value of the focal IPO through their association, our research provides key insights into how VC firms accomplish this, and into the different mechanisms of reputation transfer. Thus, we also contribute to the specific literature relating to the role of VC firms in the IPO firm by bringing the consideration of time dimensions into complex processes associated with VC investors in firms undergoing an IPO.

The overall theoretical implication of the finding of the possible impacts of increasing/decreasing reputation on value perceptions is that researchers must be far more detailed in their analysis of reputation transfer processes by moving away from a unidirectional perspective (Lange et al., 2011). Indeed, prior empirical studies have computed reputation on an annual market share basis since it is very difficult to approximate this essentially unobservable social construct (Krishnan et al., 2011; Lee et al., 2011). However, as demonstrated here, scholars need to consider not only how a transfer of prior reputation of VCs affects valuations of their IPOs but also how IPO success feeds back or spills over into a further build-up of VC reputation in subsequent periods. Researchers have to rise to the challenge to develop this more dynamic and complex understanding of reputation as we seek to further understanding in the field.

## IMPLICATIONS FOR PRACTICE

Our evidence indicates entrepreneurial firms can employ specific mechanisms to increase the view of the market of their value at IPO. The ability to associate the entrepreneurial venture with others can allow entrepreneurs to offer cognitive shortcuts by public market investors who make value judgments in the highly uncertain context. Marketing research has long emphasized such issues in relation to customers in established firms (Yang, Su, and Fam, 2012).

Our findings also have implications for IPO investors. Compared to other VC reputation measures, our analysis reflects the track record of a specific VC firm in terms of IPO valuations. This means that a less reputable VC firm – in terms of size, age, amount or number of managed funds, etc. – might have a positive trend if it is constantly improving its IPO valuation record over time. In contrast, a more reputable VC firm – in terms of size, age, amount or number of managed funds, etc. – might have a negative trend if its IPO valuation record is variable and decreasing over time. As VC firms compete to attract IPO investors (or limited partners in their future funds), our trend analysis suggests that traditional reputation measures are not sufficient for investors. Rather, while reputation creates a bond, loyalty and respect, a consistently successful track record of IPO valuation is key for IPO investors. This insight also has implications for limited partner investors in VC funds since it will impact fund returns.

This research also helps provide guidance to entrepreneurs suggesting that part of their strategic actions should include activities involving the transfer of reputation of third parties that can help build the legitimacy of their firm in the eyes of those outside it. Likewise, entrepreneurs may experience a significant loss of value if they associate their companies with VC firms who lost their reputation or have a declining reputation trend. Similarly, VC firms should be able to make greater use during negotiations of the importance of their contribution to the value building

in the entrepreneur's firm as the VC firms experience greater success over time. Our findings may also have implications for the ability of more experienced VC firms to attract better syndicate partners who perceive the value they can add to IPO firms.

Our empirical context is related to IPO firms, but our arguments can be applied to their more mature and established peers. For example, reputation damage to Toyota is argued to have affected its affiliated companies and other Japanese car manufacturers since the dynamic nature of reputation suggests that when negative events affect an organization, affiliates are held to be "guilty by association" (Lange et al., 2011).

## LIMITATIONS AND FUTURE RESEARCH

The pressure to demonstrate compliance with the expected norms and values is critical for entrepreneurial firms due to their liability of newness. As a result, entrepreneurial firms actively seek to associate with other powerful players to help validate that they meet expected norms and behaviors. Theoretically, we have framed our research in terms of reputation for the firm. However, the finding that the biggest "reputation transfer enhancer" is the number of previous IPOs a VC has participated in suggests an element of learning-by-doing and learning-by-experience that has the potential to enhance organizational learning theory. Scholars in the future should also expand the potential for greater theoretical understanding from this work for organizational learning. This also speaks to the concept of path dependency associated with the luck of the earliest investment decisions (Gompers et al., 2010). However, our findings that reputation can change due to poor performance also opens up opportunities to add to work on shifting path dependencies (Ahuja & Katila, 2004; Rasmussen et al., 2011).

A future research topic will be to examine if such increasing, or decreasing, reputation is also found among other entities the focal IPO firm may be associated with as it seeks to build its

value. Specifically, scholars should also explore the role of investment banks managing the IPO process. Greater investigation should compare VC firms' and investment banks' ability to help build value for the focal IPO firm since such factors may be complementary.

Improving perceptions of external audiences is not only a concern to IPOs. Thus, there is also a need for future research concerning reputation transfers and their enhancers, particularly in a rich set of contexts in which reputation plays a role such as joint ventures (Dacin, *et al.*, 2007), top management teams (Cohen and Dean, 2005), or boards of directors (Marcel and Cowen, 2014). It would also be valuable to expand the examination beyond VC firms to other key parties that can help the firm build its value such as private individual investors (business angels), strategic alliance partners, and accounting firms.

The nature of the relationship between the reputation transfer enhancers also raises an important theoretical question: Can an IPO firm compensate for its lack of financial performance prior to the IPO by engaging with a highly "visible" VC firm with significant prior experience to achieve a high valuation level? In line with Bell *et al*. (2014), future research should investigate the overall impact of "configurations" of reputation transfer to offset negative aspects of the firm's valuation by the investor community as the firm goes to IPO. Such configurations might also include the contribution of the quality or expertise of the general partners of the VC firm.

Further, using price premium trend as a proxy for IPO value that is impacted by reputation transfer is a possible limitation of the study. More importantly, many VC firm-backed entrepreneurial firms exit through strategic sale to a corporate partner. Additional research should explore whether similar findings hold regarding the role of VC firm experience in perceptions of entrepreneurial firms acquired by corporations, as well as the role of investment banks in this process. Additionally, our paper focuses on reputation among VC firms. In contrast,

there are calls for developing a more micro-perspective on reputation among VC peers. As most VC investments are syndicated, we already have multiple players that we need to account for in our empirical analyses. Adding a micro-perspective by focusing on individual reputation among peers would add a burdensome level of complexity in a comprehensive empirical paper based on firms. However, consideration of the importance of a micro-perspective on reputation may be another important area for future research.

Finally, we acknowledge that there may be logical inter-dependencies between the main effects of contingency factors that we used in our model. As with any contingency framework, this is a possibility that one cannot discard, and future research will help to establish further that our results are valid in other settings and when employing other analysis mechanisms.

## CONCLUSION

Reputation is a core concept in organizational theory and strategic management. While the concept is central to much of the research in management, elaboration of the theory around the concept has surprisingly been limited. Our research fills this gap by theoretically developing the rationale and showing empirical support for the argument that reputation can change over time, therefore making the effectiveness of reputational transfer to the associated entities' value perceptions time-dependent. Our research also shows there are different mechanisms through which reputation of a third party can be transferred to build value of the focal firm. Our hope is that others not only employ this new expanded understanding of reputation but use it as a foundation for the expansion of knowledge on this important topic.

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## ENDNOTES

[1] Press comment also points to this bi-directional change in reputations over time: "…The market changes have left Kleiner…..with dozens of investments that may never pay off, threatening its image as the gold standard of venture capital….Some Silicon Valley entrepreneurs say Kleiner, while well-regarded, is no longer at the very top of the VC heap. Such impressions matter when VC firms compete to fund the most promising startups, and getting in on the best deals is in turn key to future success" (McBride & Groom, 2013). Further, Atanasov, Ivanov and Litvak (2012) also find support for the argument that VCs may experience a reduction in reputation in their investigation of the impact of litigation on VCs.

[2] We thank an anonymous reviewer for this helpful suggestion.

[3] Welbourne and Andrews (1996) use the following example to justify the construction of the IPO premium. Consider two companies selling their stock at $10.00 per share. Firm X has a book value of $2.00, and firm Y has a book value of $6.00. Firm X is a riskier investment, because if it goes bankrupt, its assets are only worth $2.00, but those of firm Y are worth $6.00. For firm X and firm Y to command equivalent stock prices, an investor must believe that firm X has the potential to do very well. The difference between the stock price and the book value per share is called the dilution value, since it represents a dilution to investors purchasing the stock. However, from the company's perspective, it is a price premium. The company attempts to maximize this premium in its offering, and investors wish to minimize the premium so that their investments are more secure. Further, Welbourne and Andrews (1996) and other researchers clearly recognize limitations of using the book value in the denominator for IPO firms. This is especially the case in young IPOs with limited history and low book value, which may artificially inflate their IPO price premium. Using the offer price as a denominator allows us to

avoid such limitations and provides a more reliable proxy of the percentage of the price paid in excess of the book value per share.

[4] In line with Loughran and Ritter (2004), hi-tech firms as those with the following SIC codes: 3571, 3572, 3575, 3577, 3578 (computer hardware), 3661, 3663, 3669 (communications equipment), 3671, 3672, 3674, 3675, 3677, 3678, 3679 (electronics), 3812 (navigation equipment), 3823, 3825, 3826, 3827, 3829 (measuring and controlling devices), 3841, 3845 (medical instruments), 4812, 4813 (telephone equipment), 4899 (communications services), 7371, 7372, 7373, 7374, 7375, 7378, and 7379 (software).

[5] We thank the reviewers for this helpful suggestion.

[6] In further robustness tests, we repeat our tests using fixed effects panel regressions and controlling for the inverse mills. The Hausman test shows a significant p-value at the 1% level, which suggests that fixed effects can be used to control for potential endogeneity. Our empirical tests show consistent results and validate our predictions on the association between IPO valuation and VC reputation trend. The results are available upon request.

[7] Our IPO premium measures the excess price paid over and above the book value, and we do not take into account a price discovery process which leads to a negotiated price depending on the characteristics of the issuing firms, investment banks, and IPO investors (Loughran and Ritter, 2004). We therefore run an additional robustness test using *Tobin's Q*, calculated at the closing price of the first day of trading, as a dependent variable. Similar to the price premium trend, we calculated a new ordinal variable for *Tobin's Q*, *Past VC Tobin's Q Trend*, ranging from 1 to 5 since 1990 for each VC firm. Our results confirm the positive and significant relationship between the *Tobin's Q* variable and the *Past VC Tobin's Q Trend* as well as the positive moderating effect of our three reputation transfer enhancers. Our results are robust with the

entire sample using VC Age or the sub-sample using LPJ VC reputation index. Considering *Tobin's Q*, we may avoid looking deeply into the price negotiation between issuers and underwriters and directly focus on public market investor valuations. Our findings confirm that our dynamic VC reputation measure still positively affects IPO pricing dynamics, and the results are available upon request.

[8] Although not tabulated, in further investigations we repeated all our empirical tests using LPJ VC reputation index as a control variable for VC reputation. The results remain consistent, yet slightly less significant, and confirm our hypotheses. We further examined the role of underwriter reputation in affecting the association between IPO valuation and our measure for VC reputation. Specifically, using IPO premium as a dependent variable, we controlled for the interaction of underwriter reputation with Past VC premium trend. Our tests indicate the lack of a significant effect of *Underwriter Reputation* x *Past VC premium trend* on IPO premium. This suggests that underwriter reputation positively affect IPO premium. However, it does not affect the association between Past IPO Premium trend and IPO premium.

Table 1
Descriptive Statistics

| | Mean | s.d. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. IPO Premium | 0.73 | 0.34 | 1.00 | | | | | | | | | | | | |
| 2. Past VC Premium Trend | 3.31 | 1.22 | .34*** | 1.00 | | | | | | | | | | | |
| 3. VC Experience Intensity | 16.43 | 19.33 | .06*** | -.09*** | 1.00 | | | | | | | | | | |
| 4. VC Experience Diversity | 2.42 | 1.39 | .06*** | -.03** | .65*** | 1.00 | | | | | | | | | |
| 5. VC Lead Synd. Experience | 0.16 | 0.22 | .01* | -.02** | .21*** | .35*** | 1.00 | | | | | | | | |
| 6. VC Overall Experience | 3.16 | 1.18 | .04*** | -.05*** | .69*** | .79*** | .56*** | 1.00 | | | | | | | |
| 7. Price Revision | 0.05 | 0.27 | .02** | .00 | .04*** | -.01 | .01 | .02** | 1.00 | | | | | | |
| 8. Lead VC dummy | 0.19 | 0.39 | -.02** | .01* | .06*** | .13*** | .19*** | .14*** | -.02** | 1.00 | | | | | |
| 9. VC Age | 16.59 | 13.35 | .03** | .00 | .34*** | .33*** | .14*** | .34*** | .01 | .05*** | 1.00 | | | | |
| 10. LPJ VC Reputation | 24.36 | 21.14 | .02** | .01* | .69*** | .54*** | .20*** | .54*** | .05*** | .05*** | .36*** | 1.00 | | | |
| 11. VC IPO Success rate | 0.11 | 0.09 | .01* | .04*** | -.08*** | -.02** | -.01 | -.05*** | -.07*** | .00 | -.06*** | -.05*** | 1.00 | | |
| 12. Independent VC | 0.67 | 0.47 | -.01 | .00 | .12*** | .05*** | .12*** | .12*** | .01 | .09*** | -.06*** | .27*** | -.03** | 1.00 | |
| 13. Financial VC | 0.18 | 0.38 | -.02** | .01 | .02** | .12*** | .00 | .04*** | -.03** | -.02** | .15*** | -.18*** | .05*** | -.67*** | 1.00 |
| 14. Corporate VC | 0.09 | 0.29 | .04*** | -.03** | -.14*** | -.19*** | -.15 | -.20*** | .06*** | -.09*** | -.11*** | -.17*** | -.03** | -.46*** | -.15*** |
| 15. VC Syndicate | 8.87 | 5.08 | .09*** | -.01 | -.05*** | -.11*** | -.15*** | -.09*** | .00 | -.33*** | -.03** | .00 | -.02** | -.05*** | -.02** |
| 16. Total Assets | 152.29 | 751.12 | -.06*** | -.04*** | .01 | .09*** | .05*** | .03** | -.04*** | .04*** | .05*** | -.03 | .05 | -.02 | .05*** |
| 17. IPO Age | 9.45 | 12.38 | -.00 | -.02* | -.01 | .14*** | .09*** | .05*** | -.08*** | .10*** | .07*** | -.05*** | .07*** | -.04*** | .09*** |
| 18. Hi-tech dummy | 0.41 | 0.49 | .01 | .03** | .05*** | -.01 | .00 | .02 | .32*** | -.01 | .02 | .02 | -.08*** | .00 | -.04*** |
| 19. Loss dummy | 0.63 | 0.48 | .08*** | .00 | -.01 | -.08*** | -.04*** | -.04*** | -.03** | -.06*** | -.05*** | -.01 | -.04*** | -.01 | -.03** |
| 20. Debt to Equity | 0.29 | 0.30 | -.00 | .04*** | .00 | .03** | .05*** | .03** | .02** | .04*** | .02 | .01 | -.02 | .00 | .02 |
| 21. Participation ratio | 0.07 | 0.15 | -.02** | .06*** | .00 | .07*** | .04*** | .03** | .01 | .07*** | .06*** | -.01 | .07*** | .01 | .02 |
| 22. Underwriter Reputation | 8.26 | 1.34 | .05*** | -.02 | .07*** | .03** | -.02 | .03** | .15*** | -.05*** | .02 | .06*** | -.07*** | -.01 | -.03** |
| 23. NASDAQ | 0.82 | 0.39 | -.01 | .00 | -.01 | -.02 | .00 | -.01 | .06*** | .00 | -.03** | -.01 | -.01 | .03** | -.03** |
| 24. Market Return | 0.02 | 0.06 | -.07*** | -.04*** | .00 | .00 | .02 | .02 | .19*** | -.01 | -.01 | -.01 | -.02 | .01 | -.01 |
| 25. Heat degree | 0.48 | 0.23 | .09*** | .03*** | .01* | -.02** | .00 | .00 | .46*** | -.02** | -.02** | .00 | -.04*** | .01 | -.03** |

| | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12. Corporate VC | 1.00 | | | | | | | | | | | |
| 13. VC Syndicate | .07*** | 1.00 | | | | | | | | | | |
| 14. Total Assets | -.02 | -.10*** | 1.00 | | | | | | | | | |
| 15. IPO Age | -.06*** | -.10*** | 0.15*** | 1.00 | | | | | | | | |
| 16. Hi-tech dummy | .07*** | .01 | -.07*** | -.08*** | 1.00 | | | | | | | |
| 17. Loss dummy | .07*** | .09*** | -.03** | -.13*** | .07*** | 1.00 | | | | | | |
| 18. Debt to Equity | -.02 | -.05*** | .03** | .08*** | .02 | -.06 | 1.00 | | | | | |
| 19. Participation ratio | -.07*** | -.05*** | .12*** | .18*** | .14*** | -.20*** | .03** | 1.00 | | | | |
| 20. Underwriter Reputation | .05*** | .11*** | .06*** | -.02 | .08*** | .03** | .01 | -.01 | 1.00 | | | |
| 21. NASDAQ | -.01 | -.02 | -.07*** | -.03** | -.02 | .06*** | -.15*** | -.05*** | .01 | 1.00 | | |
| 22. Market Return | .02 | -.03** | -.04*** | -.05*** | .06*** | -.02 | -.02 | -.06*** | .03** | .04*** | 1.00 | |
| 23. Heat degree | .05*** | .00 | -.04*** | -.08*** | .11*** | .02 | -.02 | -.09*** | .11*** | .08*** | .36*** | 1.00 |

Table 1 includes the descriptive statistics in mean and standard deviation for the total number of 7,331 individual VC observations for 1,174 VCs involved in 1,676 VC-backed IPOs from 1990 to 2011, and the Correlation Matrix for the main variables. Pearson's correlation coefficients were used for continuous variables, point biserial correlation coefficients were used for dichotomous variables. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2
The Likelihood of Going Public for VC-backed Portfolio Companies

| | Logit (IPO= 1) (1) |
|---|---|
| Constant | -10.07*** |
| | *1.07* |
| Log Book Value of Portfolio Company Equity | 1.41*** |
| | *0.04* |
| Log Portfolio Company Age at Last Round | 0.54*** |
| | *0.08* |
| Log Average VC Syndicate Age | 0.05* |
| | *0.03* |
| Seed Stage dummy | -3.68*** |
| | *0.12* |
| Early Stage dummy | -3.63*** |
| | *0.09* |
| Expansion Stage dummy | -3.33*** |
| | *0.08* |
| Late Stage dummy | 2.60*** |
| | *0.09* |
| Log Number of Previous IPOs | 0.23† |
| | *0.14* |
| Market Return | 0.30** |
| | *0.11* |
| Heat degree | 0.17† |
| | *0.09* |
| GDP per Capita Growth | -0.01 |
| | *0.01* |
| State Effects | Yes |
| Industry Effects | Yes |
| Year Effects | Yes |
| N. | 26172 |
| Pseudo R2 | 0.38 |
| LR chi2 | 7636.57 |
| Prob. | 0.00 |

Table 2 includes the logit regression run for the Probability of going public using all the list of VC-backed portfolio companies from 1987 to 2011. The dependent variable is *Prob. of Going Public* is a dummy variable equal to one if the VC-backed portfolio company goes public during the studied period, zero otherwise. Standard errors are in Italics. † p< 0.1, * p < .05, ** p < .01, *** p < .001.

Table 3
IPO Premium, Past VC Premium Trend, and the moderating effects of Reputation Transfer Enhancers at the VC firm level

| | IPO Premium | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Panel A – Using Log VC Age as a proxy for VC reputation | | | | | Panel B – Using LPJ VC Reputation as a proxy for VC reputation | | | | |
| | (2a) | (2b) | (2c) | (2d) | (2e) | (3a) | (3b) | (3c) | (3d) | (3e) |
| Constant | 0.43 | 0.72* | 0.67* | 0.64* | 0.42 | 0.42† | 0.47† | 0.57* | 0.59* | 0.48† |
| | *0.31* | *0.31* | *0.31* | *0.31* | *0.31* | *0.25* | *0.25* | *0.26* | *0.26* | *0.25* |
| Past Premium Trend | 0.12*** | 0.11*** | 0.12*** | 0.12*** | 0.12*** | 0.11*** | 0.11*** | 0.11*** | 0.11*** | 0.11*** |
| | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| VC Experience Intensity | | 0.07* | | | | | 0.08*** | | | |
| | | *0.03* | | | | | *0.02* | | | |
| Past Premium Trend x VC Experience Intensity | | 0.03*** | | | | | 0.04*** | | | |
| | | *0.01* | | | | | *0.01* | | | |
| VC Experience Diversity | | | 0.02*** | | | | | 0.01† | | |
| | | | *0.01* | | | | | *0.01* | | |
| Past Premium Trend x VC Experience Diversity | | | 0.01*** | | | | | 0.01** | | |
| | | | *0.00* | | | | | *0.00* | | |
| VC Syndication Experience | | | | 0.03 | | | | | -0.02 | |
| | | | | *0.03* | | | | | *0.04* | |
| Past Premium Trend x VC Syndication Experience | | | | 0.05*** | | | | | 0.05* | |
| | | | | *0.02* | | | | | *0.02* | |
| VC Overall Experience | | | | | 0.03*** | | | | | 0.02* |
| | | | | | *0.01* | | | | | *0.01* |
| Past Premium Trend x VC Overall Experience | | | | | 0.01*** | | | | | 0.01** |
| | | | | | *0.00* | | | | | *0.00* |
| Price Revision | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02† | 0.02† | 0.02† | 0.02† | 0.02† |
| | *0.02* | *0.02* | *0.02* | *0.02* | *0.02* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| Lead VC dummy | 0.02* | 0.02* | 0.02* | 0.02* | 0.02* | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| Log VC Age | 0.01 | 0.01 | 0.01 | 0.01 | -0.02 | | | | | |
| | *0.04* | *0.04* | *0.04* | *0.04* | *0.04* | | | | | |
| LPJ VC Reputation | | | | | | 0.00** | 0.00† | 0.00* | 0.00** | 0.00** |
| | | | | | | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* |
| VC IPO Success Ratio | 0.15** | 0.15** | 0.15** | 0.15** | 0.14** | 0.11† | 0.11† | 0.11† | 0.11† | 0.11† |
| | *0.05* | *0.05* | *0.05* | *0.05* | *0.05* | *0.07* | *0.07* | *0.07* | *0.07* | *0.07* |
| Independent VC dummy | -0.15 | -0.14 | -0.15 | -0.15 | -0.14 | 0.06 | 0.08 | 0.06 | 0.07 | 0.07 |
| | *0.14* | *0.14* | *0.14* | *0.14* | *0.14* | *0.16* | *0.16* | *0.16* | *0.16* | *0.16* |
| Financial VC dummy | -0.14 | -0.12 | -0.13 | -0.13 | -0.12 | 0.26 | 0.30 | 0.27 | 0.28 | 0.31 |
| | *0.16* | *0.16* | *0.16* | *0.16* | *0.16* | *0.27* | *0.27* | *0.27* | *0.27* | *0.27* |
| Corporate VC dummy | 0.48† | 0.48† | 0.49† | 0.49† | 0.49† | 0.76* | 0.80* | 0.78* | 0.77* | 0.81* |
| | *0.29* | *0.29* | *0.29* | *0.29* | *0.30* | *0.35* | *0.35* | *0.35* | *0.35* | *0.35* |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VC Syndicate | 0.01*** | 0.01*** | 0.01*** | 0.01*** | 0.01*** | 0.00*** | 0.00*** | 0.00*** | 0.00*** | 0.00*** |
| | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* |
| Log Total Assets | -0.10*** | -0.10*** | -0.10*** | -0.10*** | -0.10*** | -0.10*** | -0.09*** | -0.10*** | -0.10*** | -0.09 *** |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| Log IPO Age | 0.06*** | 0.05*** | 0.05*** | 0.06*** | 0.05*** | 0.06*** | 0.06*** | 0.06*** | 0.06*** | 0.06*** |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.02* | *0.02* | *0.02* | *0.02* | *0.02* |
| Hi-tech dummy | -0.00 | -0.00 | -0.00 | -0.00 | -0.01 | -0.00 | -0.00 | -0.00 | -0.00 | -0.00 |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| Leverage | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.02* | *0.02* | *0.02* | *0.02* | *0.02* |
| Loss dummy | 0.02* | 0.02* | 0.02* | 0.02* | 0.02* | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| Participation ratio | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 |
| | *0.03* | *0.03* | *0.027* | *0.03* | *0.03* | *0.04* | *0.04* | *0.04* | *0.04* | *0.04* |
| Underwriter Reputation | 0.02*** | 0.02*** | 0.02*** | 0.02*** | 0.02*** | 0.02*** | 0.02*** | 0.02*** | 0.02*** | 0.02*** |
| | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* |
| NASDAQ dummy | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| Market Return | -0.10 | -0.09 | -0.10 | -0.10 | -0.10 | -0.09 | -0.07 | -0.08 | -0.09 | -0.08 |
| | *0.07* | *0.07* | *0.07* | *0.07* | *0.07* | *0.09* | *0.09* | *0.09* | *0.09* | *0.09* |
| Heat degree | 0.12*** | 0.12*** | 0.12*** | 0.12*** | 0.12*** | 0.13*** | 0.12*** | 0.13*** | 0.13*** | 0.12*** |
| | *0.02* | *0.02* | *0.02* | *0.02* | *0.02* | *0.03* | *0.026* | *0.03* | *0.03* | *0.03* |
| Lambda | -0.01** | -0.01** | -0.01** | -0.01** | -0.01** | -0.01** | -0.01** | -0.01** | -0.01** | -0.01** |
| | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* |
| VC Firm Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| IPO Industry Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| IPO Year Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| N. | 7331 | 7331 | 7331 | 7331 | 7331 | 3737 | 3737 | 3737 | 3737 | 3737 |
| Adj. R-squared | 0.32 | 0.32 | 0.33 | 0.32 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| F-Statistics | 3.86 | 3.88 | 3.91 | 3.87 | 3.91 | 4.15 | 4.16 | 4.14 | 4.14 | 4.17 |
| Prob. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Table 3 includes the OLS regressions for IPO Premium of VCs involved within the studied sample. This includes a total number of 7,331 (3,737) individual VC observations for 1,174 (522) VCs involved in 1,676 IPOs from 1990 to 2011 using Log VC Age (LPJ VC Reputation Index) as a proxy for VC reputation. The dependent variable is IPO Premium, i.e. the ratio of the difference between the offer price and the book value per share over the offer price. Standard errors are in Italics. † p< 0.1, * p < .05, ** p < .01, *** p < .001.

Table 4

IPO Premium, One-Year Past VC Premium Trend, and the moderating effects of Reputation Transfer Enhancers at the VC firm level

| | IPO Premium | | | | |
|---|---|---|---|---|---|
| Reputation Transfer Enhancers: | | Intensity | Diversity | Lead Synd. | Overall |
| | (4a) | (4b) | (4c) | (4d) | (4e) |
| Constant | 0.65† | 0.63† | 0.69* | 0.71* | 0.72* |
| | *0.34* | *0.34* | *0.32* | *0.32* | *0.32* |
| Past Premium Trend 1Y | 0.02*** | 0.02*** | 0.02*** | 0.02*** | 0.02*** |
| | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* |
| VC Reputation Transfer Enhancers | | 0.05* | 0.03*** | 0.05 | 0.02** |
| | | *0.02* | *0.01* | *0.04* | *0.01* |
| Past Premium Trend 1Y x VC Reputation Transfer Enhancers | | 0.01* | 0.00* | 0.05*** | 0.01* |
| | | *0.01* | *0.00* | *0.02* | *0.00* |
| Log VC Age | 0.02 | 0.01 | 0.017 | 0.02 | -0.01 |
| | *0.05* | *0.06* | *0.06* | *0.06* | *0.06* |
| Lambda | -0.02** | -0.02** | -0.02*** | -0.02** | -0.02** |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| Controls | Yes | Yes | Yes | Yes | Yes |
| VC Firm Effects | Yes | Yes | Yes | Yes | Yes |
| IPO Industry Effects | Yes | Yes | Yes | Yes | Yes |
| IPO Year Effects | Yes | Yes | Yes | Yes | Yes |
| N. | 4488 | 4488 | 4488 | 4488 | 4488 |
| Adj. R-squared | 0.22 | 0.22 | 0.23 | 0.23 | 0.23 |
| F-Statistics | 2.58 | 2.60 | 2.64 | 2.63 | 2.62 |
| Prob. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Table 4 includes the OLS regressions for IPO Premium of VCs involved within the studied sample. *Past VC Premium Trend 1Y* is the trend of the price premium for all previous IPOs in which the same VC firm participated during the last year prior to the focal IPO's date. This includes a total number of 4,488 individual VC observations for 790 VCs from 1990 to 2011. The dependent variable is IPO Premium, i.e. the ratio of the difference between the offer price and the book value per share over the offer price. Standard errors are in Italics. † $p< 0.1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5

IPO Premium, Past VC Premium Trend, and the moderating effects of Reputation Transfer Enhancers at the VC firm level

| | IPO Premium | | | | |
|---|---|---|---|---|---|
| Reputation Transfer Enhancers: | | Intensity | Diversity | Lead Synd. | Overall |
| | (5a) | (5b) | (5c) | (5d) | (5e) |
| Constant | 0.56 | 0.59 | 0.57 | 0.43 | 0.61 |
| | *0.40* | *0.40* | *0.40* | *0.39* | *0.40* |
| Past Premium Trend | 0.12*** | 0.11*** | 0.11*** | 0.12*** | 0.12*** |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| VC Reputation Transfer Enhancers | | 0.05 | 0.02** | -0.03 | 0.02† |
| | | *0.05* | *0.01* | *0.05* | *0.01* |
| Past Premium Trend x VC Reputation Transfer Enhancers | | 0.01† | 0.01*** | 0.06* | 0.01** |
| | | *0.01* | *0.00* | *0.03* | *0.00* |
| Latest BHAR1Y | 0.07*** | 0.07*** | 0.07*** | 0.07*** | 0.07*** |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| Log VC Age | 0.01 | 0.00 | 0.01 | 0.02 | -0.01 |
| | *0.07* | *0.07* | *0.06* | *0.07* | *0.07* |
| Lambda | -0.00 | -0.00 | -0.00 | -0.00 | -0.00 |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* |
| Controls | Yes | Yes | Yes | Yes | Yes |
| VC Firm Effects | Yes | Yes | Yes | Yes | Yes |
| IPO Industry Effects | Yes | Yes | Yes | Yes | Yes |
| IPO Year Effects | Yes | Yes | Yes | Yes | Yes |
| N. | 3564 | 3564 | 3564 | 3564 | 3564 |
| Adj. R-squared | 0.34 | 0.34 | 0.34 | 0.34 | 0.34 |
| F-Statistics | 2.81 | 2.81 | 2.85 | 2.82 | 2.83 |
| Prob. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Table 5 includes the OLS regressions for IPO Premium of VCs involved within the studied sample. *Past VC Premium* is the trend of the price premium for all previous IPOs in which the same VC firm participated during the last year prior to the focal IPO's date. This includes a total number of 3,564 individual VC observations for 946 VCs from 1990 to 2011. The dependent variable is IPO Premium, i.e. the ratio of the difference between the offer price and the book value per share over the offer price. Standard errors are in Italics. † p< 0.1, * p < .05, ** p < .01, *** p < .001.

Table 6

IPO Premium, Past VC Premium Trend, and the moderating effects of Reputation Transfer Enhancers at the VC firm level: Controlling for further VC firm characteristics

| | *Panel A – Including the Largest VC (Ownership) dummy* | | | | *Panel B – Including Last Round VC dummy* | | | | *Panel C – Including Lead VC Reputation (Lead VC Age)* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dependent Variable: IPO Premium | | | | | | | | | | | | |
| Reputation Transfer Enhancers: | Intensity | Diversity | Lead Synd. | Overall | Intensity | Diversity | Lead Synd. | Overall | Intensity | Diversity | Lead Synd. | Overall |
| | (6a) | (6b) | (6c) | (6d) | (7a) | (7b) | (7c) | (7d) | (8a) | (8b) | (8c) | (8d) |
| Constant | 0.70 | 0.62 | 0.66 | 0.61 | 0.71* | 0.66* | 0.63* | 0.41 | 0.39 | 0.35 | 0.33 | 0.34 |
| | *0.75* | *0.75* | *0.75* | *0.75* | *0.31* | *0.31* | *0.31* | *0.31* | *0.43* | *0.43* | *0.43* | *0.43* |
| Past Premium Trend | 0.12*** | 0.12*** | 0.13*** | 0.13*** | 0.11*** | 0.12*** | 0.12*** | 0.12*** | 0.11*** | 0.12*** | 0.12*** | 0.12*** |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* |
| VC Reputation Transfer Enhancers | 0.07 | 0.05*** | -0.03 | 0.04** | 0.07* | 0.02*** | 0.03 | 0.03*** | 0.07* | 0.02*** | 0.03 | 0.03*** |
| | *0.05* | *0.01* | *0.06* | *0.01* | *0.03* | *0.01* | *0.03* | *0.01* | *0.03* | *0.01* | *0.03* | *0.01* |
| Past Premium Trend | 0.01† | 0.01† | 0.06* | 0.01† | 0.03*** | 0.01*** | 0.05*** | 0.01*** | 0.03*** | 0.01*** | 0.05*** | 0.01*** |
| x VC Rep. Transf. Enhancers | *0.01* | *0.00* | *0.03* | *0.00* | *0.01* | *0.00* | *0.02* | *0.00* | *0.01* | *0.00* | *0.02* | *0.00* |
| Largest VC ownership dummy | 0.03* | 0.04* | 0.03* | 0.03* | | | | | | | | |
| | *0.02* | *0.02* | *0.02* | *0.02* | | | | | | | | |
| Last Round VC dummy | | | | | 0.02* | 0.02* | 0.02* | 0.02* | | | | |
| | | | | | *0.01* | *0.01* | *0.01* | *0.01* | | | | |
| Log Lead VC Age | | | | | | | | | 0.01† | 0.01† | 0.01† | 0.01† |
| | | | | | | | | | *0.00* | *0.00* | *0.00* | *0.00* |
| Non Lead Log VC Age | | | | | | | | | -0.01 | 0.01 | 0.01 | -0.02 |
| | | | | | | | | | *0.04* | *0.04* | *0.04* | *0.04* |
| Log VC Age | 0.06 | 0.04 | 0.03 | 0.09 | 0.01 | 0.01 | 0.01 | -0.02 | | | | |
| | *0.06* | *0.06* | *0.06* | *0.07* | *0.04* | *0.04* | *0.04* | *0.04* | | | | |
| Lambda | -0.02*** | -0.02*** | -0.02*** | -0.02*** | -0.01*** | -0.01** | -0.01*** | -0.01*** | -0.01*** | -0.01** | -0.01** | -0.01** |
| | *0.01* | *0.01* | *0.01* | *0.01* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* | *0.00* |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| VC Firm Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| IPO Industry Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| IPO Year Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| N. | 3752 | 3752 | 3752 | 3752 | 7331 | 7331 | 7331 | 7331 | 7331 | 7331 | 7331 | 7331 |
| Adj. R-squared | 0.34 | 0.34 | 0.34 | 0.34 | 0.32 | 0.33 | 0.32 | 0.33 | 0.32 | 0.33 | 0.32 | 0.33 |
| F-Statistics | 2.97 | 3.02 | 2.97 | 2.99 | 3.88 | 3.91 | 3.87 | 3.91 | 3.88 | 3.91 | 3.87 | 3.91 |
| Prob. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Table 6 includes the OLS regressions for IPO Premium of VCs involved within the studied sample. The dependent variable is IPO Premium, i.e. the ratio of the difference between the offer price and the book value per share over the offer price. Standard errors are in Italics. † p< 0.1, * p < .05, ** p < .01, *** p < .001.

Figure 1

VC Experience Intensity and the association between IPO Premium and Past VC Premiun Trend

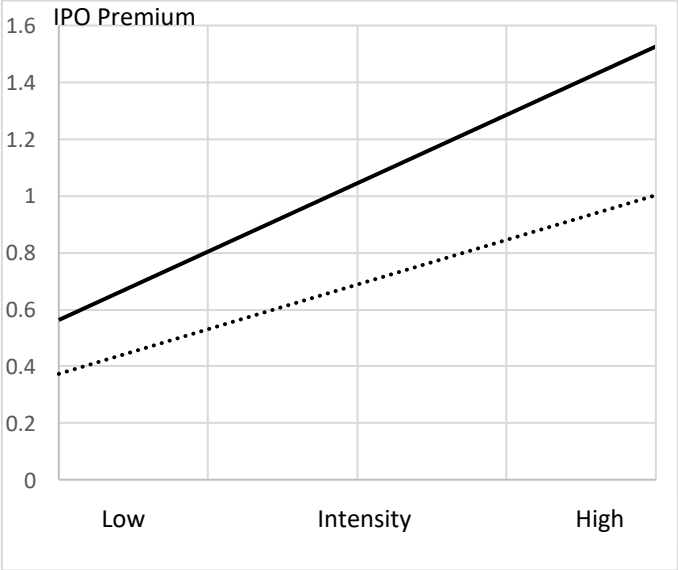


Figure 2

VC Experience Diversity and the association between IPO Premium and Past VC Premiun Trend

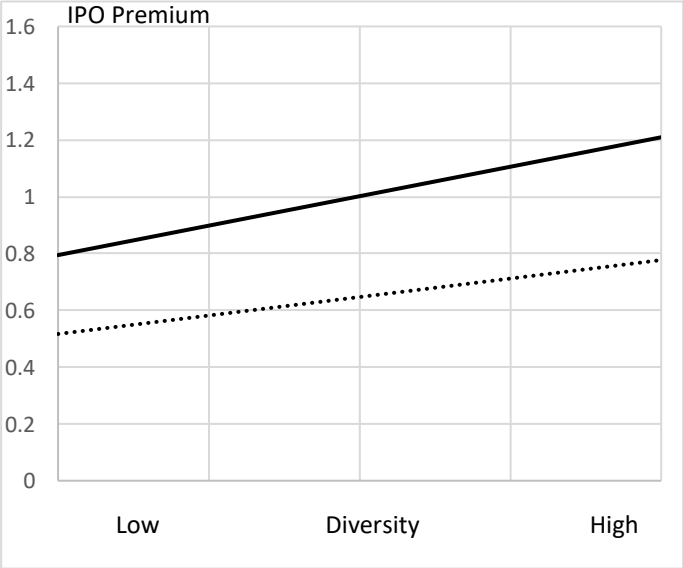


Figure 3

VC Lead Syndicate Experience and the association between IPO Premium and Past VC Premiun Trend

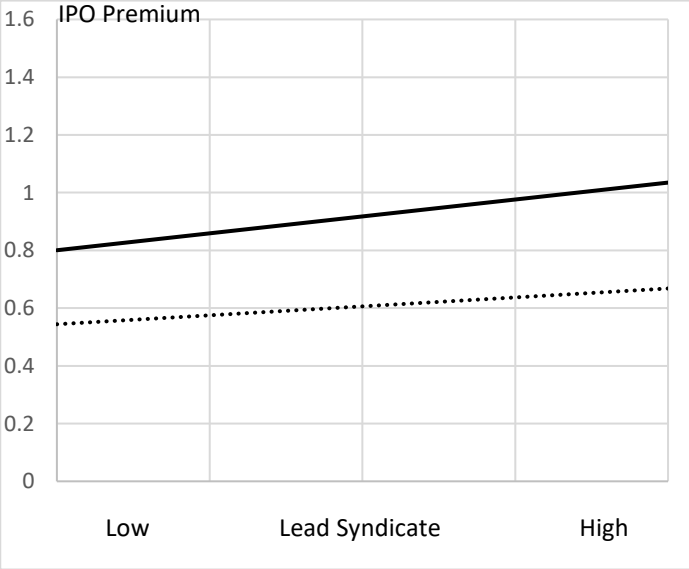


Figure 4

VC Overall Experience and the association between IPO Premium and Past VC Premiun Trend